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ANALYSIS OF THE EFFECT OF ENGLISH LANGUAGE SKILLS ON THE EFFECTIVENESS OF COMMUNICATION IN EMERGENCY SITUATIONS ON BOARD SHIPS

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Abstract

Throughout maritime history, ships have played a strategic role in international trade routes. Therefore, the proper use of English in ship guidance and navigation is crucial to avoid danger. This study measures the effectiveness of English-language emergency communication among shipping professionals by surveying 285 respondents. The research instrument was a questionnaire with 10 questions on a five-point Likert scale. Descriptive analysis results showed an average score of 4.66 out of 5.00, indicating fairly high communication effectiveness. However, there were variations in scores, suggesting that some sailors still need additional training. These findings underscore the importance of strengthening the maritime training curriculum based on Standard Marine Communication Phrases (SMCP).

Keywords: emergency, maritime English, SMCP, shipping, communication

INTRODUCTION

More than 80% of world trade volume is transported by sea, making the shipping sector vital to the global economy. This makes shipping one of the most strategic sectors in supporting the stability of international trade. The diversity of crew members from various national, cultural, and linguistic backgrounds creates unique challenges in the communication process on board ships (Andreotti et al., 2022). In this context, cross-cultural communication is not only a technical issue, but also concerns life safety and operational security.

In emergencies—such as engine failure, fire, oil spills, or medical evacuations—the speed and accuracy of communication are determining factors in the success of the response (Liu et al., 2021; Rodinadze et al.,

2020). Delayed, ambiguous, or poorly understood instructions can worsen the situation and threaten the safety of the entire crew and cargo(Tac & Celik, 2022; Wang et al., 2021; Zou et al., 2021)Therefore, effective communication language is not merely a means of interaction, but has become an important instrument in maritime risk management.

The International Maritime Organisation (IMO) introduced Standard Marine Communication Phrases (SMCP), with English as the primary medium to standardise international communication. The purpose of SMCP is to reduce ambiguity in instructions, improve message clarity, and ensure uniformity of terms understood by all parties, regardless of cultural differences or native languages. This standardisation is expected to minimise the risk of misunderstanding in high-risk situations (Li et al., 2023; Zhu et al., 2022)

However, implementing SMCP in the field still faces several obstacles. Many sailors are not yet fully confident in using English according to the standards. Other obstacles include limited technical vocabulary, different accents, and low exposure to real-life maritime communication training(Mönnigmann & Čulić-Viskota, 2017; Wang et al., 2022). This means the potential for communication errors is still quite high and can directly impact shipping safety.

Based on these issues, this study examined the effectiveness of using SMCP-based English in emergencies. The main focus of the survey includes: (1) The extent to which sailors feel confident using standard phrases in emergencies, (2) What are the main challenges in cross-cultural communication?, (3) How can existing maritime communication training bridge the competency gap among ship crews?

By raising this issue, the study is expected to provide practical and empirically-based recommendations to strengthen the maritime education curriculum and emergency communication training policies. Furthermore, the results of this study have the potential to increase the professionalism

of seafarers while reducing the risk of maritime accidents caused by communication failures.

METHODOLOGY

This study uses a descriptive quantitative approach to provide a systematic description of seafarers' perceptions of the effectiveness of English-language emergency communication. A quantitative approach was chosen because it can produce numerical data that can be measured, compared, and analysed objectively (Shareia, 2016).

2.1 Research Instruments

The instrument was a closed questionnaire with a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The questionnaire consisted of 10 items developed based on the main indicators of emergency communication effectiveness (Wu et al., 2020), namely:

1. Speed of information delivery,
2. Accuracy of instructions received,
3. Crew responsiveness to emergencies,
4. Minimal communication barriers,
5. Level of language comprehension in critical situations,
6. Clarity of commands given,
7. Use of standard phrases in accordance with SMCP,
8. Quality of team coordination,
9. Active listening skills, and
10. Reaction to emergency instructions.

The questionnaire items were developed based on maritime communication literature and IMO standards, so each item represents real field conditions.

2.2 Data Collection Procedure

The survey was distributed online via Google Form to 468 respondents who were cadets undergoing sea training in 2025 from various

types of ships: cargo ships, tankers, passenger ships, and tugboats. Respondents were selected using purposive sampling, namely those who had direct experience in operational communication at sea (Casareale et al., 2017; Steven, robert, 2018)Of these, 285 respondents completed the questionnaire and were eligible for further analysis.

This technique was chosen because:

a) The respondents were directly involved in maritime operations,
b) The representation covered various types of ships,
c) It allows data to be obtained more quickly, efficiently, and extensively through online media.

2.3 Data Analysis Techniques

Descriptive statistics is a data analysis method that presents a general description of a phenomenon through a summary of simple numbers, such as mean values, standard deviations, and frequency distributions. Descriptive statistics serve to organise, summarise, and present data in a form that is easier to understand without testing hypotheses or generalisations (Sugiyono, 2024)This technique is widely used in social and educational research to provide an initial understanding of the patterns of the data obtained.

a. Mean (Average)

The mean or average value is used to measure central tendency, which is the central position of the data distribution. The mean provides an overview of the general level of a variable as perceived by respondents (Halcomb & Hickman, 2015). In the context of communication research, the mean value reflects the level of communication effectiveness that sailors perceive based on their answers to each item in the instrument. The higher the mean value, the more positively the respondents perceive communication effectiveness.

b. Standard Deviation

Standard deviation is a measure that shows how much variation or deviation the data has from the mean value. A small standard deviation indicates that the respondents' answers are relatively homogeneous, while a large standard deviation suggests significant differences in perception among respondents (Yin, 2006). This study uses standard deviation to assess the level of uniformity in sailors' perceptions of the effectiveness of emergency communication in English.

c. Frequency Distribution

Frequency distribution is the presentation of data in the form of category groupings that show how often certain values appear in the data (Erlinawati & Muslimah, 2021) This technique is useful for determining the tendency of respondents' answers to each question item, such as whether most respondents tend to answer "agree" or "strongly agree." In maritime communication research, frequency distribution helps identify which aspects are most valued and which still need improvement.

2.4 Validity and Reliability Tests

a. Validity Test

The validity of an instrument indicates the extent to which a measuring tool actually measures what it is supposed to measure (Azwar, 2015). In quantitative research, validity is a key requirement for the data produced to be reliable and have scientific meaning. One commonly used approach is construct validity, which is the extent to which the items in the instrument truly represent the construct or theoretical concept being studied.

Validity testing is usually conducted using item-total correlation using the Pearson product-moment technique. If the correlation coefficient of an item to the total score is ≥ 0.30, then the item is considered valid (Sugiyono, 2024)Thus, the higher the correlation value, the better the questions' contribution to explaining the intended construct. In this study, validity ensures that each questionnaire item measures aspects of

emergency communication effectiveness, such as information speed, instructions clarity, and use of SMCP.

b. Reliability Test

Reliability relates to the consistency of an instrument, namely, the extent to which a measuring tool provides stable results when used repeatedly under the same conditions.(Sudaryono et al., 2019). A reliable instrument will produce consistent data, making the research findings more credible.

A method often used to test reliability is Cronbach's Alpha coefficient. An α value ≥ 0.70 is usually considered sufficient to indicate good reliability, while an α value ≥ 0.80 indicates excellent reliability (Steven, robert, 2018). The higher the alpha value, the stronger the internal consistency between items in the instrument. In this study, reliability is an important indicator to ensure that all questions regarding emergency English communication truly measure the same construct so that the measurement results can be scientifically justified.

RESULT/FINDINGS

3.1 Descriptive Statistics

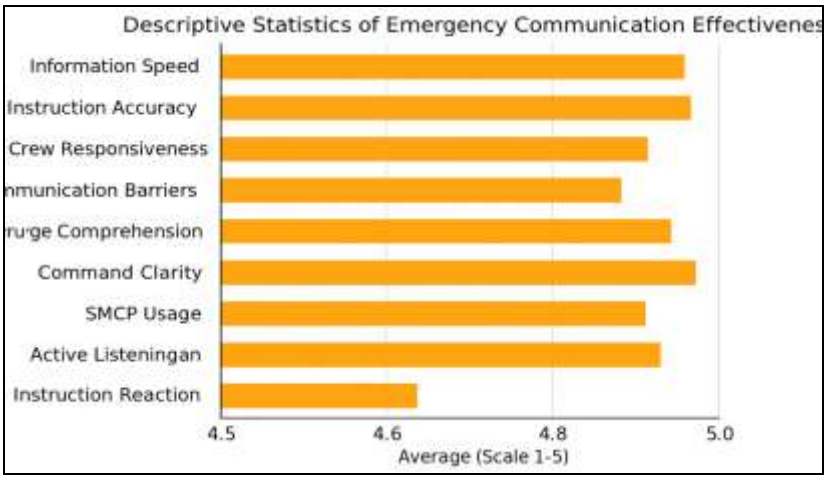
The results of the descriptive analysis show that the average score for each item ranges from 4.66 to 4.91 on a maximum scale of 5. This figure indicates that most respondents gave ratings in the "agree" to "strongly agree" categories, so sailors' perceptions of the effectiveness of emergency communication in English can be said to be very positive in general.

The item with the highest score (mean = 4.91) was accuracy of emergency instructions.

This shows that seafarers feel that the instructions they receive in emergencies are relatively clear, precise, and do not cause much ambiguity. Timely and accurate instructions are one of the most important elements in preventing the escalation of danger at sea. The high score

indicates that, despite language barriers, seafarers are highly aware of the importance of emergency instructions consistent with the safety procedure standards in Figure 1.

Figure 1. Descriptive Statistics Results



Item with the lowest score (mean = 4.66): Reaction to emergency instructions.

This score is still relatively high, but lower than the other items. This difference can mean that some sailors still experience difficulties interpreting, understanding, or executing instructions quickly in high-pressure situations. Delayed or inappropriate reactions have the potential to reduce the overall effectiveness of the emergency communication system. This needs to be the focus of improvement in the form of practical training and routine simulations.

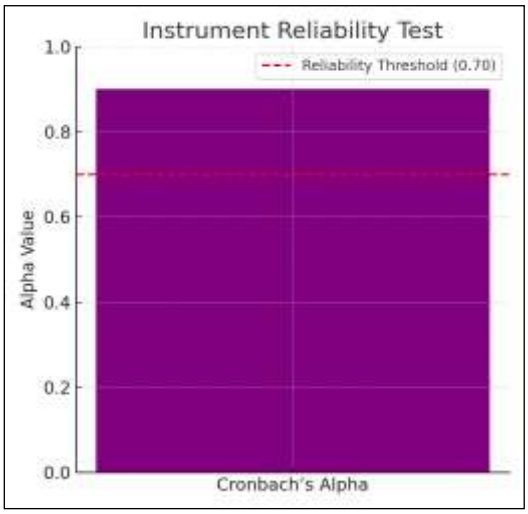
In addition, the low standard deviation indicates a high level of homogeneity in the respondents' answers. This means that the sailors' perceptions of the effectiveness of emergency communication are relatively uniform, with no significant differences between individuals. This shows that experience in the field provides a collective understanding

that emergency communication is indeed an absolute necessity recognised by all parties.

3.2 Reliability and Validity Test

The reliability test results produced a Cronbach's Alpha value of 0.90, well above the minimum limit (0.70), as shown in Figure 2. This value indicates that the research instrument has very strong internal consistency, so that the questions in the questionnaire truly measure the same aspect, namely the effectiveness of English emergency communication.

Figure 2. Reliability Test Results



In the validity test results in Figure 3, all items showed positive correlation values with the total score (r = 0.32–0.84), so it can be concluded that all items are valid. However, Item 1 (speed of information delivery) had the lowest correlation value. This indicates that the ability to convey initial information quickly in emergencies remains a major challenge for some sailors. The contributing factors may include limited technical vocabulary,

accent differences among crew members, and psychological factors such as panic in critical conditions.

Figure 3. Validity Test Results

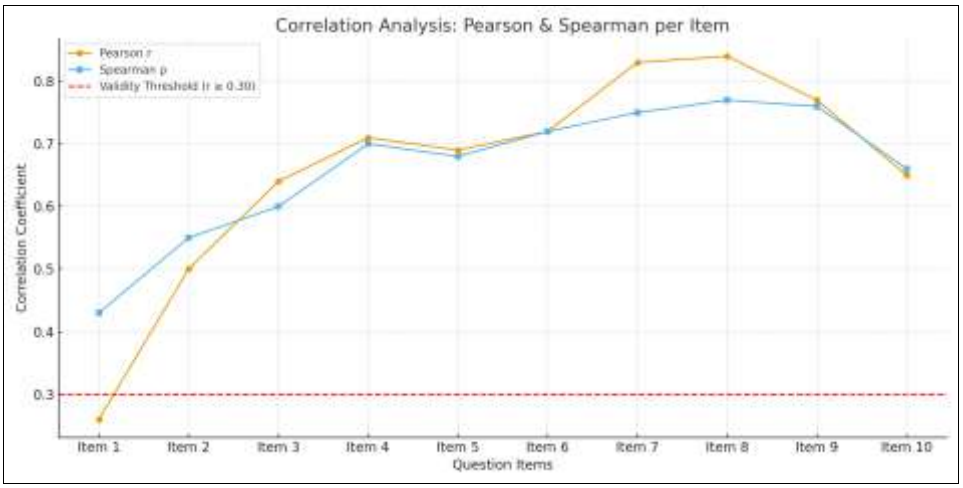
3.3 Correlation Analysis

The results of the analysis of the relationship between variables reinforce the descriptive findings:

a. Pearson and Spearman correlations show a strong positive relationship between using SMCP (Items 7–9) and seafarers' communication skills. This means that the clearer and more consistent the use of standard phrases, the higher the communication skills seafarers perceive. This confirms the importance of SMCP as an effective international communication tool in emergencies.

b. Chi-Square analysis shows no significant differences between study programs or maritime education backgrounds. In other words, the effectiveness of English emergency communication is universal, influenced more by practical skills honed through experience and practice, rather than solely by the major or academic path taken.

Figure 4. Pearson and Spearman Correlation Results



These findings confirm that the success of emergency communication is largely determined by individual competence, namely language skills and mastery of standard procedures, rather than by formal educational factors.

3.4 Research Implications

The results of this study have several important implications that can be applied both in maritime education and maritime industry practice. First, strengthening the naval education curriculum is prioritised, emphasising English language learning based on emergency communication simulations. Maritime students need to not only master technical vocabulary, but also be trained to use Standard Marine Communication Phrases (SMCP) in real scenarios such as ship fires, man overboard, and passenger evacuation, so that they are accustomed to communicating effectively in critical conditions. Second, shipping companies must conduct regular emergency communication drills with English as the primary language.

Such drills allow sailors to hone their quick reaction skills, reduce the risk of misunderstandings, and strengthen team coordination on board. Third, special attention must be given to the speed of initial information delivery, which has proven to be a major weakness. To that end, training

can be directed at delivering brief, clear, and direct instructions even in high-pressure situations. Finally, the effectiveness of emergency communication also depends on strengthening the safety culture. Sailors must be equipped with discipline, composure, and professionalism when facing crises so that communication remains optimal and safety can be maintained.

CONCLUSION

This study proves that maritime English, particularly when applying Standard Marine Communication Phrases (SMCP), is highly effective in supporting emergency communication at sea. Most respondents assessed the communication as clear, consistent, and timely, strengthening team coordination in high-risk situations. The results of the research instrument testing also showed a very good level of reliability (Cronbach's Alpha = 0.90), so the data obtained can be scientifically accounted for.

However, this study also highlights weaknesses in the speed of initial information delivery. Although emergency instructions are generally well understood, delivering initial information during an incident still faces obstacles due to language limitations, psychological pressure, and suboptimal coordination between crew members.

Furthermore, the findings indicate that the effectiveness of emergency communication does not depend on academic background or field of study, but rather on practical skills acquired through experience and repeated practice.

Thus, emergency communication competence is not only a product of formal education, but also the result of integrating SMCP mastery, practice-based training, and the internalisation of a safety culture on board. Based on these findings, there is an urgent need to strengthen the maritime education curriculum by integrating Maritime English for Emergency Communication, which emphasises real-life case simulations, and encouraging shipping companies to consistently conduct SMCP-based

emergency communication drills, such as fire drills, passenger evacuation, and man overboard drills, using English as the primary language. These efforts will improve seafarers' professionalism while minimising the risk of communication errors in emergencies.

REFERENCES

Andreotti, C., Baglietto, P., Maresca, M., & Strada, S. (2022). Assisted text messaging system for maritime emergency communications. *Human Factors in Transportation, 60*. https://doi.org/10.54941/ahfe1002512

Azwar, S. (2015). Reliabilitas Dan Validitas, Keempat. *Buletin Psikologi*, *3*(1).

Casareale, C., Bernardini, G., Bartolucci, A., Marincioni, F., & D'Orazio, M. (2017). Cruise ships like buildings: Wayfinding solutions to improve emergency evacuation. *Building Simulation*, *10*(6). https://doi.org/10.1007/s12273-017-0381-0

Erlinawati, E., & Muslimah, M. (2021). Test Validity and Reliability in Learning Evaluation. *Bulletin of Community Engagement*, *1*(1). https://doi.org/10.51278/bce.v1i1.96

Halcomb, E. J., & Hickman, L. (2015). Mixed reserach methods. *Journal of Mixed Methods Research*, *1*(2).

Li, R., Yang, Y., Han, J., Dai, Z., Xu, X., & Liu, Y. (2023). Visualization analysis of research on maritime search and rescue by knowledge mapping. *Chinese Journal of Nautical Medicine and Hyperbaric Medicine*, *30*(2). https://doi.org/10.3760/cma.j.cn311847-20220418-00130

Liu, L., Zhang, H., Xie, J., & Zhao, Q. (2021). Dynamic evacuation planning on cruise ships based on an improved ant colony system (Iacs). *Journal of Marine Science and Engineering*, *9*(2). https://doi.org/10.3390/jmse9020220

Mönnigmann, B., & Čulić-Viskota, A. (2017). Standardised English language proficiency testing for seafarers. *Transactions on Maritime Science*, *6*(2). https://doi.org/10.7225/toms.v06.n02.007

Rodinadze, S., Bezhanovi, Z., Mikeladze, T., & Zarbazoia, K. (2020). On importance of nonverbal communication in maritime English teaching. *Proceedings - 16th Annual General Assembly and Conference of the International Association of Maritime Universities, IAMU AGA 2015*.

Shareia, B. F. (2016). Qualitative and Quantitative Case Study Research Method on Social Science: Accounting Perspective. *International Journal of Economics and Management Engineering*, *10*(12).

Steven, robert, M. (2018). Qualitative reserach metdod. In *Analytical Biochemistry* (Vol. 11, Issue 1).

Sudaryono, Rahardja, U., Aini, Q., Isma Graha, Y., & Lutfiani, N. (2019). Validity of Test Instruments. *Journal of Physics: Conference Series*, *1364*(1). https://doi.org/10.1088/1742-6596/1364/1/012050

Sugiyono. (2024). Metode Penelitian Kuantitatif, Kualitatif, dan R&D – MPKK – Toko Buku Bandung. In *Alfabeta cv*.

Tac, B. O., & Celik, M. (2022). Prediction of Emergency Preparedness Level On-Board Ships Using Discrete Event Simulation: the Case of Firefighting Drill. *Transactions on Maritime Science*, *11*(2). https://doi.org/10.7225/toms.v11.n02.008

Wang, X., Liu, Z., Loughney, S., Yang, Z., Wang, Y., & Wang, J. (2022). Numerical analysis and staircase layout optimisation for a Ro-Ro passenger ship during emergency evacuation. *Reliability Engineering and System Safety*, *217*. https://doi.org/10.1016/j.ress.2021.108056

Wang, X., Liu, Z., Wang, J., Loughney, S., Zhao, Z., & Cao, L. (2021). Passengers' safety awareness and perception of wayfinding tools in a Ro-Ro passenger ship during an emergency evacuation. *Safety Science*, *137*. https://doi.org/10.1016/j.ssci.2021.105189

Wu, B., Zhang, J., Yip, T. L., & Guedes Soares, C. (2020). A quantitative decision-making model for emergency response to oil spill from ships. *Maritime Policy and Management*. https://doi.org/10.1080/03088839.2020.1791994

Yin, R. K. (2006). Case Study Reserach - Design and Methods. In *Clinical Research* (Vol. 2). https://doi.org/10.1016/j.jada.2010.09.005

Zhu, Y., Ma, W., Feng, H., Liu, G., & Zheng, P. (2022). Effects of Preparedness on Successful Emergency Response to Ship Accident Pollution Using a Bayesian Network. *Journal of Marine Science and Engineering*, *10*(2). https://doi.org/10.3390/jmse10020179

Zou, Y., Zhang, Y., & Ma, Z. (2021). Emergency situation safety evaluation of marine ship collision accident based on extension cloud model. *Journal of Marine Science and Engineering*, *9*(12). https://doi.org/10.3390/jmse9121370